

WHAT IS CLAIMED IS:

1. A maraging steel having high fatigue strength, consisting essentially, by mass, of not more than 0.008% C, from 0 inclusive but not more than 2.0% Si, from 0 inclusive but not more than 3.0% Mn, not more than 0.010% P, not more than 0.005% S, 12 to 22% Ni, 3.0 to 7.0% Mo, less than 7.0% Co, not more than 0.1% Ti, not more than 2.0% Al, less than 0.005% N(nitrogen), not more than 0.003% O(oxygen), and the balance substantially Fe, a total amount of $(3Si + 1.8Mn + Co/3 + Mo + 2.6Ti + 4Al)$ being in a range of 8.0 to 13.0%.

2. A maraging steel having high fatigue strength according to claim 1, further containing not more than 4 mass% Cr.

3. A maraging steel having high fatigue strength according to claim 1, further containing not more than 0.01 mass% B.

4. A maraging steel having high fatigue strength according to claim 2, further containing not more than 0.01 mass% B.

5. A maraging steel having high fatigue strength according to claim 4, further containing, by mass, at least one kind selected from the group consisting of not more than 1.0% Nb, not more than 2.0% Ta, and not more than 2.0% W.

6. A maraging steel having high fatigue strength according to claim 4, further containing, by mass, at

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least one kind not more than 0.5% in total selected from the group consisting of Nb, Ta, and W.

7. A maraging steel having high fatigue strength according to claim 1, wherein said steel has crystal grains fine in size which is not less than 9 in ASTM number.

8. A maraging steel strip made by use of a maraging steel according to claim 1, comprising a nitride layer formed on a surface portion of said maraging steel, and compressive residual stress in said surface portion.

9. A maraging steel strip made by use of a maraging steel according to claim 3, comprising a nitride layer formed on a surface portion of said maraging steel, and compressive residual stress in said surface portion.

10. A maraging steel strip made by use of a maraging steel according to claim 5, comprising a nitride layer formed on a surface portion of said maraging steel, and compressive residual stress in said surface portion.

11. A maraging steel having high fatigue strength, consisting essentially, by mass, of not more than 0.008% C, from 0 inclusive but not more than 1.0% Si, from 0 inclusive but not more than 2.0% Mn, not more than 0.010% P, not more than 0.005% S, 12 to 22% Ni, 3.0 to 7.0% Mo, less than 7.0% Co, not more than 0.05% Ti, not more than 2.0% Al, less than 0.005% N,

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not more than 0.003% O, and the balance substantially Fe, a total amount of $(3\text{Si} + 1.8\text{Mn} + \text{Co}/3 + \text{Mo} + 2.6\text{Ti} + 4\text{Al})$ being in a range of 8.0 to 13.0%.

12. A maraging steel having high fatigue strength according to claim 11, further containing not more than 4 mass% Cr.

13. A maraging steel having high fatigue strength according to claim 11, further containing not more than 0.01 mass% B.

14. A maraging steel having high fatigue strength according to claim 12, further containing not more than 0.01 mass% B.

15. A maraging steel having high fatigue strength according to claim 14, further containing, by mass, at least one kind selected from the group consisting of not more than 1.0% Nb, not more than 2.0% Ta, and not more than 2.0% W.

16. A maraging steel having high fatigue strength according to claim 14, further containing, by mass, at least one kind not more than 0.5% in total selected from the group consisting of Nb, Ta, and W.

17. A maraging steel having high fatigue strength according to claim 11, wherein said steel has crystal grains fine in size which is not less than 9 in ASTM number.

18. A maraging steel strip made by use of a maraging steel according to claim 1, comprising a nitride layer formed on a surface portion of said

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maraging steel, and compressive residual stress in said surface portion.

19. A maraging steel strip made by use of a maraging steel according to claim 13, comprising a nitride layer formed on a surface portion of said maraging steel, and compressive residual stress in said surface portion.

20. A maraging steel strip made by use of a maraging steel according to claim 15, comprising a nitride layer formed on a surface portion of said maraging steel, and compressive residual stress in said surface portion.

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